SECTION _____ – SCOW SILENT INSPECTOR

PART 1 GENERAL

1.0 INTRODUCTION

The SI system for scows collects and records measurements from scow sensors, and transfers this information to produce standard reports and graphical displays. These specifications list options that can be selected by the Contracting Officer or his/her authorized representative for each contract specification situation depending on the level of monitoring required. The usage profiles are:

Tracking profile: The Tracking profile provides a record of the time-position history of the scow and the open/closed position of the split hull. This profile is intended to be implemented with a GPS tracking unit and hull open/closed sensor.

Monitoring profile: The Monitoring profile includes the requirements of the tracking profile plus instrumentation to provide the heading and higher resolution timing and track information on loading and disposal events.

Tons Dry Solids (TDS) profile: The TDS profile includes all of the requirements of the Monitoring profile plus instrumentation required to compute the total dry weight of the sediment load.

The work for this contract requires the _____ profile. (Entered by Contracting Officer or his/her representative)

These performance-based specifications specify the required output data and accuracy and precision requirements. They may be implemented with equipment and technical procedures selected by the contractor.

All profiles require a common data transmission approach based on e-mail messaging. These specifications define the format of a Simple Mail Transport Protocol (SMTP) e-mail message and an Internet e-mail address where the message will be sent. The contractor may select any commercial satellite, cellular phone, or other data communications systems that meet the performance criteria to send the message. The system shall report these messages via one of the following methods:

1) As soon as the event occurs
2) On regular intervals of 6, 12, or 24 hours.

3) On a load basis – all the events for a load cycle are sent at one time.

Analysis and reports are produced by the Silent Inspector system (a government facility) in a common format for all dredge contracts. The SIDB server automatically processes the incoming e-mail from all the operating scows nationwide. The contractor-supplied systems will only be required to produce the human readable e-mail message with the required data items.

Quality assurance/quality control procedures as required in these specifications will be conducted to ensure that accurate data are being collected and transmitted.

1.1 SI System Implementation Schedule (Payment) – Tailored

The SI system implementation schedule requirements are specified in this section per different dredging contracts. For illustrative purposes, the implementation scheduling requirements used by the Mobile district are provided below.

"The system will be required to be operational within 30 days after the Notice to Proceed. No separate payment will be made for this item, the Contractor should include any costs for this system into the unit price under Item 2a. If the system is not operational after 30 days after the Notice to Proceed, or if the system becomes inoperable for a period of time greater than allowed in the following specification, the hourly rate of pay for the dredge for 100% time will be reduced to 95% of the original bid price until the system is fully operational."

1.2 Dredge Plant Instrumentation Plan

The contractor shall develop a Dredge Plant Instrumentation Plan (DPIP) that shows how he will gather sensor data, perform quality control on those data, calibrate and repair sensors/data reporting equipment when they fail, and distribute the sensor data and computed scow specific data via a standard reporting interface. The contractor shall keep a log of sensor problems and repairs the sensor log may be combined with the contractor's quality control report at the discretion of the Contracting Officer or his/her representative. Re-calibration may be directed at any time during contract execution as deemed necessary. No recalibration or adjustments to the calibration controls shall be performed in the absence of the Contracting Officer or his/her representative without prior written approval. Physical documentation of the calibration procedures and corresponding printed verification data shall be provided for every calibration event.

PART 2 PRODUCTS

PART 3 EXECUTION

3.1 Sensor Specifications

The contractor will provide, operate and maintain all hardware and software to meet the following specifications for the Tracking, Monitoring, or TDS profile.

3.1.1 Horizontal Positioning (All Profiles)

Horizontal dredging equipment positioning shall be provided in State Plane coordinates based on North American Datum 1983 when possible. Horizontal positioning shall be obtained using either differential Global Positioning System (DGPS) equipment operating with a minimum accuracy level of 1-3 meters horizontal Circular Error Probable (CEP) or with GPS equipment using the Wide Area Augmentation System. This accuracy level requirement is optional for the tracking profile. Differential Correction broadcasts will be furnished 24 hours/day by the Government in standard RTCM SC-104 version 2.0 output. Horizontal positioning shall be recorded to the nearest whole foot when provided in State Plane coordinates. Datums may vary according the local geodetic coordinate system in common use at a USACE District. Optionally, position may be reported as Latitude/Longitude or UTM at the discretion of the Contracting Officer or his/her representative (section 3.4.4).

3.1.2 Date and Time (All Profiles)

The date and time shall be reported to the nearest second in the format shown in section 3.4.4. The time shall be referenced to Coordinated Universal Time (UTC).

3.1.3 Hull Status (All Profiles)

Open/closed measurements of hopper status shall be obtained. These data correspond to the split/not-split condition for a scow. An OPEN value refers to when the hull is split or bottom doors open. A CLOSED value refers to when the hull is not split or the bottom doors closed.

3.1.4 Scow Heading (Required for Monitoring, TDS profiles)

Vessel headings shall be provided using industry standard equipment described in written form and approved by the Contracting Officer or his/her representative prior to dredging. Calibration will be performed according to manufacturer's specifications prior to commencement of work and documented in the DPIP. The scow heading should be accurate to within 5 degrees and the contractor shall report the heading to the nearest whole degree with values from 000 (true north) to 359 degrees referenced to a clockwise positive direction convention. Scow heading format is shown in section 3.4.4.

3.1.5 Scow Course (All Profiles)

Vessel course over ground he shall be provided using industry standard equipment described in written form and approved by the Contracting Officer or his/her representative prior to dredging. The contractor shall provide scow course over ground (to the nearest whole degree) with values from 000 (true north) to 359 degrees referenced to a clockwise positive direction convention. Scow course format is shown in section 3.4.4.

3.1.6 Scow Speed (All Profiles)

Vessel speed over ground shall be provided using industry standard equipment described in written form and approved by the Contracting Officer or his/her representative prior to dredging. Scow speed format is shown in section 3.4.4.

3.1.7 Scow Draft (Monitoring, TDS Profile)

Draft measurements shall be obtained to the nearest 1/10 foot from the scow's keel. Industry standard pressure sensors or an equivalent system approved by the Contracting Officer or his/her representative prior to dredging may be used by the contractor. The contractor must provide in writing as part of the DPIP how to relate measured draft values to external draft markings on the scow. The contractor will verify draft sensor calibration according to manufacturer's specifications prior to commencement of work and document the calibration in the DPIP. A single draft sensor may be used as part of the monitoring profile. The TDS profile will require two draft sensors one fore and one aft.

3.1.8 Scow Bin Level (TDS Profile)

Fore and aft bin material level measurements shall be obtained to the nearest 1/10 foot. A minimum of two sensors are required, one fore and one aft. If only two sensors are used, they should be mounted in a location as close as possible over the bin centerline. If more than one fore or one aft sensor is used, then they should be placed near the corners of the hopper and the average value of the fore sensors and the average value of the aft sensors shall be reported. A spare sensor shall be maintained for replacement during dredging. The contractor will install and calibrate the sensors according to manufacturer's directions and guidelines.

As part of his DPIP submittal, the contractor will provide calibration information for all sensors. The plan will include four measurements of different hopper levels, comparing the sensor value to a standard, i.e., a tape measure. The Contracting Officer or his/her representative may perform checks of the reported sensor to hopper level distance. Distance from sensor face to: 1) bottom of bin and, 2) reference elevation for ullage measurements to calculate volume of bin contents, shall be measured and provided to the Contracting Officer or his/her representative as a part of the DPIP.

3.2 Performance Requirements

The contractor shall be responsible for replacement or repair of sensors and other necessary data acquisition equipment needed to supply the required data. Repairs must be completed within 48 hours after a sensor failure occurs or the contractor fails to report required data within the specified time window (section 3.4.2) for scow measurements. Otherwise, dredging operations may be suspended at the discretion of the Contracting Officer or his/her representative.

3.2.1 System Performance Requirement

To meet the overall all goals stated in the introduction, the contractor's system is expected to provide a minimum 95% data return. Data return is defined as the total number of records sent divided by the total possible number of records if the system worked normally.

3.3 Contractor Provided Equipment

The contractor provides all equipment necessary to report data according to section 3.4 for a given profile.

3.4 Data Reporting Interface

The contractor may use any available means to transmit the data to the COE via the Internet in the required mail message format. The data may be sent directly from the scow or from a shore-based computer.

3.4.1 Data Measurement Interval

All profiles require a history of the time of events and report data as a series of events. Data should be measured frequently enough by the scow system to resolve the events to the accuracy specified in the following table:

Event Description	**Event Time Resolution**	**Event Position Resolution**
An elapsed time of 1 hour since the last event	1 minute	NA
Scow transition across a map grid cell.	1 second	10%
Change in hull open status	1 second	NA

When the scow hull is closed, each map grid cell shall have a maximum dimension of 1km square. This event can also be interpreted as when the distance from the last position equals or exceeds 1km. When the scow hull is open the grid cell dimension shall be 10m square and a sampling interval of 6 seconds is typically used. Each event report shall include the event time, position, and the hull open status. The system will have the capability of storing at least 1000 event reports.

3.4.2 Data Event Reporting

The system shall report this event history via SMTP via one of the following methods:

4) As soon as the event occurs
5) On regular intervals of 6, 12, or 24 hours.
6) On a load basis – all the events for a load cycle are sent at one time.

For this contract data shall be reported (_____District selection___). If the system fails to report within this specified interval, then the system is considered to be nonfunctional (section 3.2).

3.4.3 Mail Message Format

The Simple Mail Transport Protocol (Internet RFC 2821) shall be used to report data to the COE. The mail message shall have the following contents (Internet RFC 2822):

To: sidatatransfer@usace.army.mil
From: contractor's email address
Subject: SISDATA Transfer
Attachment: SI SDATA html file

Mail message start of body
SISDATA
SI Scow Data Transfer
Blank line

Optional additional annotations from contractor – all data after the blank line are ignored.

End of message

3.4.4 Mail Attachment File Format

The attached data file is a MIME encoded (Internet RFC 2045) Extensible HyperText Markup Language (W3C standard XHTML 1.1) document. The format required here facilitates viewing the data in a web browser as well as automated handling of the data. Any length of data may be included, but the file attachment size should not exceed six Megabytes. Only the html, table, tr, th, td, h2, h3 and body tags are permissible.

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE html
PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml" xml:lang="en" lang="eng">
<body>

<h2 class = “contract”>contract number</h2>
<h3 class = “vessel_name”>scow name</h3>

<table class = “SISDATA”>
<tr>
<th>TRIP_NUMBER</th>
<th  coord_type =  “(SP,LL,UTM)”>X_POSITION</th>
<th  coord_type =  “(SP,LL,UTM)”>Y_POSITION</th>
<th>DATE_TIME</th>
<th>HULL_STATUS</th>                (All profiles)
<th>SCOW_COURSE</th>               (All profiles)
<th>SCOW_SPEED</th>               (All profiles)
<th>SCOW_HEADING</th>             (Monitoring and TDS profiles)
```

<th>SCOW_AVG_DRAFT</th> (Monitoring profile only)
<th>SCOW_FWD_DRAFT</th> (TDS profile only)
<th>SCOW_AFT_DRAFT</th> (TDS profile only)
<th>ULLAGE_FWD</th> (TDS profile only)
<th>ULLAGE_AFT</th> (TDS profile only)
<th>SCOW_DISPLACEMENT</th> (TDS profile only)
<th>SCOW_BIN_VOLUME</th> (TDS profile only)
</tr>

<tr>
<td>trip number value</td>
<td>x position value</td>
<td>y position value</td>
<td>date time value</td>
<td>hull status value</td>
<td>scow course value</td>
<td>scow heading value</td> (Optional for tracking profile)
<td>average draft value</td> (Monitoring profile only)
<td>fwd draft value</td> (TDS profile only)
<td>aft draft value</td> (TDS profile only)
<td>fwd ullage value </td> (TDS profile only)
<td>aft ullage value </td> (TDS profile only)
<td>displacement value</td> (TDS profile only)
<td>bin volume value</td> (TDS profile only)
</tr>
<tr>
… repeated for additional data records
</tr>
</table>
</html>
</body>

Header Tag	**Tag Notes**
vessel_name	The name of the scow
contract	The USACE contract number that the work is being performed under, or the applicable permit number.
X_POSITION	Scow X position. Latitude or Easting in state plane coordinates Latitude and Longitude values are to be reported in decimal degrees. West Longitude values are reported as negative and Northerly Latitude reported as positive. State plane coordinates may

Header Tag	Tag Notes
	be reported to the nearest whole foot. The attribute **coord_type** has the value SP for state plane coordinates, LL for Latitude or Longitude and UTM for Universal Transverse Mercator coordinates. Only these three values are valid. Latitude should be reported by default
Y_POSITION	Scow Y position. Longitude or Northing in state plane coordinates. Longitude in decimal degrees should be reported by default. The same comments for the X_POSITION tag apply.
DATE_TIME	mm/dd/yyyy hh:mm:ss defined as UTC time in 24hr format.
HULL_STATUS	OPEN or CLOSED are the only permissible values.
SCOW_SPEED	The scow speed measured in knots at the reported time. This measurement is required for the Monitoring and TDS profiles.
SCOW_COURSE	The scow course over ground reported from 0 to 359 degrees. This GPS derived measurement is required for all profiles
SCOW_HEADING	The scow heading reported from 0 to 359 degrees. This measurement is required for the monitoring and TDS profiles.
TRIP_NUMBER	The trip number starts at one at the beginning of work for a particular contract or permit. The trip number is incremented at the completion of the disposal/placement part of the scow cycle.
SCOW_AVG_DRAFT	The representative draft of vessel below waterline in feet. This is the draft of the scow computed from a single sensor placed in an optimum location. This measurement only applies to the Monitoring profile.
SCOW_FWD_DRAFT SCOW_AFT_DRAFT	Draft of vessel below waterline in feet at the forward and aft sensor locations. These measurements are required for the TDS profile.
SCOW_DISPLACEMENT	Weight of the scow at the time of measurement in long tons. These measurements are required for the TDS profile
ULLAGE_FWD ULLAGE_AFT	Distance from the top of the bin down to the surface of the dredged material in the bin (measured in feet). This distance is called ullage and the corresponding capacity tables are known as hopper ullage tables. These values are obtained either by averaging multiple sensors (i.e., from port and starboard corners of the fore bin for one value and, from port and starboard corners of the aft bin for another) or optimal placement of a single fore and single aft sensor. These measurements are required for the TDS profile.
SCOW_BIN_VOLUME	Volume of the bin in cubic yards computed from the ullage sensor values. This computed measurement is required for the TDS profile.

3.4.5 Tracking Profile Single Record Example

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE html  PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml" xml:lang="en" lang="eng">
<body>
<h2 class = “contract”>DACW01-05-C-0001</h2>
<h3 class = “vessel_name”>COE Scow 1</h3>
<table class = “SISDATA”>
<tr>
<th>TRIP_NUMBER</th>
<th coord_type = “SP">X_POSITION</th>
<th  coord_type = “SP">Y_POSITION</th>
<th>DATE_TIME</th>
<th>HULL_STATUS</th>
<th>SCOW_COURSE</th>
</tr>
<tr>
<td>21</td>
<td>1777345.1</td>
<td>893256.8</td>
<td>04/11/2004 12:01:55</td>
<td>CLOSED</td>
<td>111</td>
</tr>
</table>
</body>
</html>
```

3.4.6 Monitoring Profile Example – Multiple Records

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE html  PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
  "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml" xml:lang="en" lang="eng">
<body>
<h2 class = “contract”>123456789</h2>
<h3 class = “vessel_name”>COE Scow 2</h3>
<table class = “SISDATA”>
<tr>
<th>TRIP_NUMBER</th>
```

```
<th  coord_type = “SP“>X_POSITION</th>
<th  coord_type = “SP“>Y_POSITION</th>
<th>DATE_TIME</th>
<th>HULL_STATUS</th>
<th>SCOW_SPEED</th>
<th>SCOW_COURSE</th>
<th>SCOW_HEADING</th>
<th>SCOW_AVG_DRAFT</th>
</tr>
<tr>
<td>2</td>
<td>1777345.1</td>
<td>893256.8</td>
<td>04/11/2002 12:11:55</td>
<td>OPEN</td>
<td>3.2</td>
<td>259</td>
<td>300</td>
<td>5.5</td>
</tr>
<tr>
<td>3</td>
<td>1777395.1</td>
<td>9993256.8</td>
<td>04/11/2002 12:12:05</td>
<td>CLOSED</td>
<td>3.2</td>
<td>258</td>
<td>301</td>
<td>5.0</td>
</tr>
</table>
</body>
</html>
```

3.4.7 TDS Profile Example

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE html  PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
  "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml" xml:lang="en" lang="eng">
<body>
<h2 class = “contract”>DACW01-03-C-0011</h2>
<h3 class = “vessel_name”>COE Scow 3</h3>
<table class = “SISDATA”>
<tr>
<th>TRIP_NUMBER</th>
<th coord_type = “LL“>X_POSITION </th>
<th  coord_type = “LL“>Y_POSITION </th>
<th>DATE_TIME</th>
<th>HULL_STATUS</th>
<th>SCOW_SPEED</th>
<th>SCOW_COURSE</th>
<th>SCOW_HEADING</th>
<th>SCOW_FWD_DRAFT</th>
<th>SCOW_AFT_DRAFT</th>
<th>ULLAGE_FWD</th>
<th>ULLAGE_AFT</th>
<th>SCOW_DISPLACEMENT</th>
<th>SCOW_BIN_VOLUME</th>
</tr>
<tr>
<td>2/td>
<td>-82.479309 </td>
<td>28.073948 </td>
<td>04/11/2002 13:11:55</td>
<td>OPEN</td>
<td>3.2</td>
<td>312</td>
<td>313</td>
<td>5.53</td>
<td>5.91</td>
<td>2.31</td>
<td>2.72</td>
<td>4712.1</td>
<td>2722.1</td>
</tr>
```

<tr>
<td>3</td>
<td>-82.479319 </td>
<td>28.073968 </td>
<td>04/11/2002 13:12:05</td>
<td>CLOSED</td>
<td>3.2</td>
<td>311</td>
<td>312</td>
<td>5.0</td>
<td>5.91</td>
<td>2.31</td>
<td>2.72</td>
<td>4522.1</td>
<td>2282.1</td>
</tr>
</table>
</body>
</html>

3.4.8 Contractor Data Backup

The dredging contractor shall maintain an archive of the data sent via SMTP for the length of the dredging project. The Contracting Officer or his/her representative may request (at no additional cost to the contract price) that the contractor provide a copy of these data covering specified time periods. The data will be provided on PC format CD-R disks (or alternate storage medium agreeable to the Contracting Officer or his/her representative, such as 100Megabyte ZIP disks) and each of the requested time periods will be identified.

3.5 Dredge Plant Instrumentation Plan

A Dredge Plant Instrumentation Plan shall be submitted prior to commencement of dredging operations by the contractor at the preconstruction conference or earlier. The plan shall include at a minimum:

3.5.1 Scow Computations and Documentation

All computations for a particular scow concerning deriving computed data elements as required in section 3.4 from sensor data elements will be provided to the Contracting Officer or his/her representative. For the TDS profile these include the bin volume and scow displacement. The

Contracting Officer or his/her representative must approve any changes to the computing methods (prior to the change being applied) during the dredging contract in writing.

The contractor will also provide the Contracting Officer or his/her representative with dimensioned drawings of the scow. These drawings should include bin length, depth, and width with required sensors referenced to the overall dimensions. A typical mid-ship bin cross-section should be included with dimensions. The drawings should include overall scow dimensions and show the locations of all sensors needed to supply required data.

For the TDS profile, these drawings should include bin length, depth, and width with bin level sensors referenced to the overall dimensions. The overall scow dimensions shall also be provided, indicating the locations of each draft sensor(s) with regard to; 1) horizontal and vertical distances from the keel, 2) horizontal and vertical distances between each draft sensor, 3) vertical distances to the bin level sensors, 4) distance of aft draft sensor to aft perpendicular, 5) distance of fore draft sensor to fore perpendicular, 6) distance of the aft draft sensor from the midship section, and 7) distance of the fore draft sensor from the midship section. The contractor shall also provide in writing as part of the DPIP; how to relate fore and aft ullage sensor measurements to bin volume calculations.

3.5.2 Data Reporting

Contractor proposed additions of non-standard sensor data names not in section 3.4.4 shall be supplied to the Contracting Officer or his/her representative. An example ASCII format file of data to be exported will be provided at the pre-construction conference or earlier.

3.5.3 Calibrations

The contractor will provide certificates of calibration and/or manufacturers certificates of compliance for all needed scow information. These include draft, bin level sensors for the TDS profile.

3.5.4 Instrumentation Quality Control Methods

Test methods used by the contractor to provide quality control of input sensor data should be documented. These test methods shall include the checking of sensors to verify that reported values are applicable for that sensor and the particular project being dredged. The ability to report out-of-range sensor values must be demonstrated prior to the commencement of dredging operations.

3.5.5 Sensor Log

The contractor shall maintain a log of sensor performance and modifications during the length of the dredging contract. The log shall contain the time when a sensor fails (and subsequently

repaired). The log shall also include the time and results of sensor calibrations, the time of sensor replacements, and the time when backup sensor systems are initiated to provide required data. It shall also contain the name of the person responsible for the sensor work. Only sensors that affect the data reported in section 3.4 are affected by this logging requirement. The contractor may elect to add this log to the quality control report.

3.5.6 Scow Volume and Displacement (TDS profile)

The contractor will supply the Contracting Officer with the scow ullage table that lists the bin volume as a function of bin level and a scow draft displacement table listing the scow displacement as a function of draft and vessel trim. Curves of form that provide this information may also be used subject to approval by the Contracting Officer or his/her representative. A licensed marine surveyor or architect must certify these tables and curves of form independent of the contractor. The contractor should specify the most accurate method for calculating bin volume based on fore and aft bin level and displacement based on fore and aft draft. This method and accompanying documentation should be placed into the DPIP used by the contractor to report vessel weight.

3.5.7 Scow DPIP Deliverables

Description	Referring Section
Overall scow dimensioned drawing with sensor locations	3.5.1
Quality control methods	3.5.4
Proposed additions to data reporting interface	3.5.2, 3.4.4
Sensor calibrations - draft, bin level (TDS Profile)	3.1.7, 3.1.8
Sensor Log	3.5.5

3.6 Quality Assurance Tests

3.6.1 Water Test (TDS Profile)

The Contracting Officer or his/her representative will direct the contractor in performing up to six water tests prior to commencement of work, all at no additional cost to the contract price. Each water test will consist of pumping the bin out to its lowest level and then filling the bin to capacity with water. At each of the stages of the test (empty and full state), a time duration of at least two minutes will pass before going to next stage. After the first three water tests, the Contracting Officer will evaluate the data for accuracy. If the Contracting Officer's review of the data indicates an unsatisfactory calibration, a re-calibration of the sensors and review of contractor-supplied displacement and hopper volume may be necessary before completing the final three water tests. During dredging operations, one water test per week may be conducted at the discretion of the Contracting Officer or his/her representative at no extra cost to the contract. The Contracting Officer or his/her representative will review the water test data to insure that the system is operating within acceptable accuracy, directing the contractor to re-calibrate or repair system components as necessary.

3.6.2 Bin Level (TDS Profile)

The Contracting Officer or his/her representative will periodically check the reported bin level. Tape measure or other distance measuring means shall be used. The Contractor shall have available a clearly readable steel weighted tape with measurements shown in foot-and-tenths, capable of measuring the full depth in the scow bin from bin coaming. The weight for this tape will be a 6-inch diameter disk weighing between 2 and 3 pounds.

3.6.3 Position Checks

The Contracting Officer or his/her representative will periodically check the reported position. Independent position measuring equipment will be used to verify locations. Sailing by points with known locations may also be used to verify position information.

3.7 List of Items Provided by the Contractor

Description	Section Reference
Dredge Plant Instrumentation Plan	3.5
Scow draft (Monitoring Profile)	3.1.7, 3.4.4
Scow draft and displacement (TDS Profile)	3.1.7, 3.4.4, 3.5.1
Scow Speed, Course, Heading (Monitoring, TDS Profiles)	3.1.4, 3.1.5, 3.1.6, 3.4.4
Hull Status	3.1.3, 3.4.4
Data reporting	3.4
Scow data acquisition time and events	3.1.2, 3.4.1, 3.4.4
Scow position	3.1.1, 3.4.4
Measuring tape (TDS Profile)	3.6.2

3.8 SCHEDULE OF DPIP SUBMITTAL - Tailored

The Contracting Officer tailors this section. This language is used by MVN.

The Contractor DPIP submittal shall be required 15 days after the Notice to Proceed. Within 7 days after receipt of the DPIP, the Contracting Officer or his/her representative will review and comment on its acceptability. After this DPIP is reviewed and accepted by the Contracting Officer or his/her representative, the onboard system will be required to be inspected, approved by the Contracting Officer or his/her representative, and operational within 30 days after the Notice to Proceed. If the system is not operational after 30 days after the Notice to Proceed, or if the system becomes inoperable for a period of time greater than allowed in the specification, the Dredging unit price, for each assignment, will each be reduced to 80% of the original bid price for the hours when the system is not fully operational.